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ABSTRACT

An analysis of English sentences containing noun phrases (NPs) with extraposed complements argues that the extraposition (EX) is base-generated and not derived by any applications of the Move-alpha principle. A Move-alpha analysis is subject to substantial technical difficulties, and there exist cases of EX for which there is no plausible source in terms of Move-alpha. In particular, movement and ellipsis configurations show that phrases extraposed from both subject and object positions may be adjoined to the verb phrase at S-structure, a possibility that is inconsistent with the framework of assumptions and constraints needed for a movement analysis. Arguments that have appeared against base-generation are seen to support the proposal. Further implications of the nonmovement analysis are examined. Thirty-two references are listed, and further discussion is provided in six pages of footnotes. (MSE)

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A NONMOVEMENT ANALYSIS OF EXTRAPOSITION FROM NP

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A NONMOVEMENT ANALYSIS OF EXTRAPOSITION FROM NP

M. Rochemont and P. Culicover
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1. Extraposition and Movement

English sentences containing NPs with postnominal adjunct or argument clauses and PPs exhibit a potential alternation which has been of longstanding interest to generative syntacticians. This alternation is illustrated below in (1)-(4).

(1) a. A man that no one knew came into the room.
b. A man came into the room that no one knew.
(2) a. A man with blonde hair came into the room.
b. A man came into the room with blond hair.
(3) a. John saw a picture of his brother in the paper.
b. John saw a picture in the paper of his brother.
(4) a. A report that the ambassador was still in hiding was made public today.
b. A report was made public today that the ambassador was still in hiding.

The (a) and (b) pairs in (1)-(4) have potentially identical truth conditional interpretations. In the (b) sentences, the complement to a head noun appears extraposed from the NP with which it is construed, rather than in its canonical position within NP, as in the (a) examples. It has been standard in generative treatments to consider the (b) sentences as transformationally related to their counterparts in (a) by a rule of Extraposition from NP (EX). Given the discontinuous relation between head and complement in such cases, an account of the interpretive correspondence of the (a) and (b) pairs in terms of movement has seemed completely natural, and has been largely undisputed.1

The notion that extraposed phrases are related to a gap within the antecedent NP has nevertheless led to problems in the analysis of EX, for the reasons that EX is both less and more restricted than other constructions also assumed to involve a gap in the position relative to which the dislocated phrase receives an interpretation. A simple comparison is provided by considering parallel cases from wh question constructions. Consider the examples in (5) and (6).

(5) a. *Which actors would beautiful pictures of cost too much?
b. *Of which actors would beautiful pictures cost too much?
(6) a. *It was believed that John saw a picture in the newspaper by everyone of his brother.
b. Who did Mary say that John saw a picture of in the newspaper?

As the examples in (5) show, a wh phrase may not be related to a gap within a subject NP, in contrast to the examples with EX in (1), (2) and (4). In this respect, EX is less restricted than wh Movement. On the other hand, while a wh phrase may sometimes appear unboundedly far from the gap to which it is related, as in (6b), an extraposed phrase is strictly bounded relative to its antecedent. Compare (6a). These contrasts pose problems for any account of the alternation in (1)-(4) that seeks to represent it in terms of an antecedent/gap relation.

This exceptional behavior of EX has not gone unnoticed in the prior literature. It has been addressed in a variety of ways, most prominently by distinguishing leftward and rightward movements and their respective susceptibility to constraints of various kinds (cf. eg. Baltin (1981,1983), Huang (1982)) or by treating EX as a stylistic (PF) or postcyclic rule, so displaying properties distinct from S-structure/cyclic applications of Move (cf. eg. Ross (1967), Rochemont (1978), Chomsky (1986)). In the course of our discussion, we will consider several such accounts and potential arguments for and against them. For the present, we restrict our attention to just one possible account, based on the proposals of Baltin (1987). On this account, the more restricted behavior of EX, illustrated in (6), is attributed to a specific formulation of the Subjacency Condition in (7), referred to as Generalized Subjacency in Baltin (1981,1983).

(7) In the configuration X...[A...[B...Y...]...]...X',
a. X and Y cannot be related where A and B = one of NP, PP, and either or both of S and S';
b. X' and Y cannot be related where A and B are both maximal projections.

As formulated above, Subjacency requires that EX may not extract a phrase beyond the maximal projection that most immediately dominates the NP containing the phrase to be extraposed. Note that rightward movement, according to (7), is more restricted than leftward movement. Baltin attributes the less restricted behavior of EX seen in (5) to the adjunct character of the extraposed phrase itself. Adapting the proposal of Lasnik and Saito (1984) that movement rules only optionally leave traces, and specifically only where required by independently motivated principles of grammar, Baltin argues that traces of extraposed phrases need not appear at S-structure to satisfy any principle, being the traces of adjuncts.2 If the illformedness of wh movement in examples such as (5) is due to the ECP, then the failure of the ECP to apply in derivations involving EX may be attributed to the nonappearance of a trace in such cases. Thus, the strictly bounded character of EX is attributed to Subjacency as formulated in (7) and the possibility for rightward but not leftward extraction from a subject is attributed to the adjunct character of the extraposed phrase and the corresponding lack of a trace at S-structure in the D-structure position of that

phrase. For ease of reference in the coming discussion, we will refer to the account of EX just outlined as "the movement account", though we note that our discussion potentially extends also to analyses that may not specifically invoke movement.

While it may appear to properly characterize the contrasts between EX and wh Movement, the movement account faces a number of difficulties. Consider first the proposal to accommodate the less restricted nature of EX as a function of the nonappearance of adjunct traces at S-structure. As Baltin observes, adjunct traces are not mandated by the Projection Principle, since this principle governs the distribution of arguments only, as a function of the lexical information associated with heads. Nevertheless, there is a principle not mentioned by Baltin that apparently does require the presence of adjunct traces. this is the Principle of Full Interpretation (PFI) of Chomsky (1986a), to which the Projection Principle is presumably related. According to the PFI, every sentence must be fully interpreted, in the sense that every constituent contained within it receives an interpretation. Since an extraposed phrase is neither an argument to the head of the projection to which it is adjoined (be it V, I, or C), nor a predicate, nor an operator, it can apparently receive an interpretation only as a function of the trace it presumably binds within NP as a function of movement. There is moreover considerable evidence that in other cases the PFI mandates that dislocated adjuncts not only may but must bind traces at S-structure in their D-structure positions, specifically for purposes of the ECP. For instance, Huang (1982), Lasnik and Saito (1984), and Chomsky (1986b) all seek to provide an account of the absolute ungrammaticality of examples such as (8a) in terms of the application of the ECP to the trace of the wh moved adjunct in the embedded clause.

(8) *How does John know [which car Mary fixed t]?

To assume that t in (8) may be absent at the point of application of the ECP would be to abandon any available account of the ungrammaticality of this and similar examples in a broad variety of languages, as Lasnik and Saito (1984) very clearly demonstrate. Baltin's proposal that traces of extraposed phrases may fail to appear because they are adjuncts and so fail to satisfy the ECP therefore leads to a theory internal contradiction.

This argument might be countered by claiming that extraposed phrases differ from other adjuncts specifically in how they satisfy the PFI. In particular, suppose that an extraposed phrase could receive an interpretation without binding a trace within the NP with whose head it is construed. Then the PFI could be satisfied without any need for postulating a trace within NP, and the lack of ECP effects with EX could be properly accommodated without jeopardizing the ECP account of the

restricted interpretation of dislocated adjuncts in cases such as (8).

There is in fact in the literature on EX a hypothesized interpretive principle of just the required sort. It is advanced initially in Gueron (1980), and further modified and refined in Gueron and May (1984). For the present, we state it simply as the Complement Principle (CP), returning to its proper formulation below.

(9) If β is a complement to α, then β is a constituent governed by α.

The CP specifically requires that complements appear within the government domains of their heads. As Gueron and May observe, the CP may in fact regulate the distribution not only of extraposed phrases, but also of arguments relative to their heads in positions of theta-marking.3 In the applications we consider here, however, choice of both α and β in (9) is restricted to maximal projections only. In adapting the CP to the interpretation of extraposed phrases, we will understand the antecedent of an extraposed phrase to be the NP with which it is construed. The CP then requires the extraposed phrase to appear within the government domain of its antecedent. Let us suppose that the CP regulates the interpretation of extraposed phrase in the following fashion. Suppose that β is a maximal projection that is governed by some Xo head at S-structure. Suppose further that β is not an argument to that head, and that it is also neither an predicate nor an operator. Then β can receive an interpretation only if it may be construed as a complement to some NP that governs it.4 If not, then the sentence fails to be fully interpreted, and the PFI is violated.5 Seen in this light, the CP can in fact serve to satisfy the PFI for extraposed phrases without requiring the presence of a trace within the antecedent NP. The ECP is thereby (trivially) satisfied in such cases, and the less restricted behavior of EX is correspondingly derived.

If, however, traces play no role in providing the proper interpretation of extraposed phrases, there is some reason to wonder whether EX should be analyzed in terms of movement at all. One possible argument that it should is that a movement account properly characterizes the bounded nature of EX. In particular, if Subjacency (cf. (7)) constrains only movement operations, then analyzing EX in terms of movement provides a principled account of the bounded nature of EX independent of the appearance of a trace of the extraposed phrase. This argument in favor of a movement account is in fact somewhat weaker than it appears. We note first that the CP too provides a possible account of the bounded nature of EX, and is in fact exploited in the analysis of Gueron and May (1984) for precisely this purpose.6 In particular, if the CP applies at S-structure to lexically filled

instances of α and β only, then it in fact imposes a strict locality requirement on the antecedent / complement relation. Since the CP is required whether movement is invoked or not, as we have already seen, then by Occam's Razor it is preferable to Subjacency as an account of the bounded character of EX.

There are in addition two further problems with the Subjacency account. First, note that this account works only by stipulating an otherwise unmotivated distinction between leftward and rightward movement.7 Second, while the Subjacency account correctly blocks unbounded movement of an extraposed phrase in a single step, it fails to block successive cyclic movement of the extraposed phrase in a fashion exactly parallel to wh movement, a feature that is exploited as a another critical component of the Gueron and May analysis.8 Given that Subjacency does not provide an account of boundedness in EX constructions without some adaptive stipulations, and given also the implausibility of assuming the presence of a trace in these constructions to begin with, it is worth investigating whether the locality restriction imposed by the CP is sufficient to characterize the bounded nature of EX without appeal to movement at all.9

If both the strictly bounded nature of EX and the apparent extractions from subjects in EX can in fact be attributed to the CP, then there is no reason to assume movement is involved in the derivation of EX. The realization of this program of research is the goal of the remainder of this article. In section 2, we consider the required formulation of the CP by examining the constituent structure of EX constructions through the application of a range of traditional diagnostics. We conclude, contrary to virtually all prior work in this regard, that phrases extraposed from subjects are adjoined not to IP but to VP. This conclusion further undermines a movement analysis of EX, as we will argue, and is seen to have far reaching consequences for the proper formulation of the CP, rendering inadequate the prior formulations of Gueron (1980) and Gueron and May (1984).

2. The constituent structure of EX and the CP

2.1 The position of extraposed phrases

It has been widely recognized that an extraposed phrase related to an object NP (OX) may be attached to VP. This is shown by examining evidence from the ellipsis, topicalization and pseudoclefting of VP. In all of these constructions, the OX may be included with the VP in the relevant construction.

(10) a. John met a man last week (who was) from Philadelphia, and George met a man last week (who was) from Philadelphia / did too.
b. John said he would meet a man at the party (who was)

from Philadelphia, and meet a man at the party (who was) from Philadelphia he did.

c. What John did was draw a picture on the wall of his brother.

In fact, ellipsis, topicalization, or pseudoclefting of the VP must include the OX, as shown in (11).

(11) a. John met a man last week (who was) from Philadelphia, and George met a man last week / *did (who was) from New York.

b. *John said he would meet a man at the party (who was) from Philadelphia, and meet a man at the party he did (who was) from Philadelphia.

c. *What John did of his brother was draw a picture on the wall.

Facts such as these are discussed by Baltin (1978, 1981, 1983), Gueron (1980), and others. The obligatory inclusion of the OX as in (11) is quite generally attributed to a restriction against vacuous quantification that requires the extraposed phrase to bind a position which is not in fact represented at S-structure. In an account of EX that makes appeal to the CP, it is equally well accommodated by assuming that the extraposed phrase is not properly related to an antecedent at S-structure.

We may conclude from the facts in (10) that OX may adjoin to VP. It can also be argued, however, that OX must adjoin to VP, and may not be adjoined any higher. This argument is based on the observation that a OX may not contain a name that is bound by a pronoun in subject position.

(12) *Shei invited many people to the party that Maryi didn't know.

We assume that α c-commands β if α does not dominate β and every node that contains α contains β. We also assume following Chomsky (1981, 1986b) that the binding conditions are stated in terms of this notion of c-command, and in particular that a pronoun may not c-command its antecedent. It must be then that the subject position in (12) c-commands the OX, which would not be the case were the latter possibly adjoined to IP.

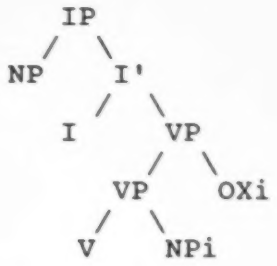
Considerations of coreference may also be used to argue that the OX is in fact adjoined to VP as a constituent outside the phrase containing the verb and its subcategorized arguments. In particular, note that a name contained in the OX may serve as antecedent for a pronoun within VP even where a name contained within the nonextraposed counterpart may not.10

(13) a. I sent heri many gifts last year that Maryi didn't like.

b. *I sent heri many gifts that Maryi didn't like last year.

Given these arguments we assume that the constituent structure for OX can only be as in (14).11

(14)



As indicated, we assume that the antecedent / complement relation is represented as a function of coindexing.

Let us now consider the constituent structure position of subject extraposed phrases (SX). Contrary to prior work on such cases, we think there is evidence that SX at least may adjoin to VP. Our main argument to this effect is based on the ellipsis of VP. Consider the following examples.12

(15) a. A MAN came in with blonde hair, but a WOMAN DIDN'T [e].
b. A MAN came in with BLONDE hair, and a WOMAN did [e] with BROWN hair.

(16) a. A MAN came in who had lived in Boston, but a WOMAN DIDN'T [e].
b. A MAN came in who had lived in BOSTON, and a WOMAN did [e] who had lived in CAMBRIDGE.

(17) a. Although none of the MEN did, several of the WOMEN went to the concert who were visiting from BOSTON.
b. Although none of the MEN did who were visiting from NEW YORK, several of the WOMEN went to the concert who were visiting from BOSTON.

The examples in (15) - (17) show that when extraposition is from subject, VP Ellipsis apparently may but need not take the extraposed constituent. This is precisely what we would expect if the structure is one of adjunction to VP, and if VP Ellipsis may apply to either VP. Note also that the possibility for SX to not be included in the ellipsis of VP in contrast to OX is unsurprising, if the ungrammaticality of (11) is due to the lack of an antecedent for the OX at S-structure. In the (b) examples of (15)-(17), there is an antecedent for the SX present at S-structure.

It is perhaps appropriate at this point to make a brief

comment concerning our judgment of wellformednes for the examples of (15)-(17). It might be claimed that these examples are only marginally grammatical, in that they are acceptable only under a contrastive reading, hence with "contrastive stress". The implication of this objection is that the term "contrastive stress" has the same interpretation in such cases as it has in the superficially parallel cases of contrastive lexical stress assignment, as in (18).

(18) John is looking for a [NblackBOARD], not a [NblackBIRD].

It has been argued at length, however, that the notion of contrast relevant to examples like those in (15)-(17) is not at all equivalent to that required in the claimed contrastive assignment of lexical stress in examples such as (18). First, while there is a clear and grammatically well defined notion of "normal stress" for semantically noncompositional lexical items, there is no corresponding such notion for focus related sentence accents.13 Second, the term "contrastive stress" as applied to "atypical" assignments of lexical stress is systematically context sensitive in a very restricted fashion only. In particular, it is argued in Rochemont (1986) that "contrastive stress" is restricted to contexts of repair. The contrastive interpretation of focus related accent, on the other hand, is more broadly context sensitive, and not constrained in the manner that "contrastive stress" is.

Thus, the interpretation of a focused phrase as contrastive is a matter independent of sentence grammar, and subject to systematic description by reference almost exclusively to properties of the context of discourse.14 The interpretation of contrast is therefore irrelevant to the determination of grammaticality for a sentence, except to the extent that it may be manipulated as a control factor in constructing appropriate examples, as we have done in (15)-(17). For instance, (17b), to be good, must be pronounced with focal accents on men and New York in the preposed clause. While this is, we think, an interesting fact about the sentence, there is no issue whether the sentence is itself grammatical or not. Given the grammaticality, then, of the examples in (15)-(17), the conclusion that SX may be adjoined to VP is sustained.15

There is, of course, an alternative analysis of the a-sentences in (15)-(17) that does not require this conclusion. Suppose that the extraposed relative is not attached to VP, that VP Ellipsis applies to VP, and that an independent rule of "adjunct deletion" applies to the relative clause. The analysis would then be that in (19b) or (19c) and not that in (19a).

(19) a. A man [came in who had lived in Boston]i, but a woman didn't [ei].
b. A man [came in]i [who had lived in Boston]j, but a

woman didn't [ei] [ej].
c. A man [came in]i [who had lived in Boston]j, but [a woman [ej]] didn't [ei].

Baltin (1981, n.1) argues for essentially this view on the basis of sentences like (20).

(20) Although not many people would ride with Fred who know just him, some would be willing to take the chance.

However, Baltin's example is not well chosen, because some in the main clause can plausibly be argued to have the analysis some [e], where [e] receives the reading people who know just him in logical form.16 An example in which the head noun is overt, such as (21), might disallow this possibility.

(21) Although not many people would ride with Fred who know just him, some people would be willing to take the chance.

Our judgment is that (21) does not readily have the relevant reading that is available for (20), in which some people is understood as some people who know just him. In fact, it does not seem that there is an "adjunct deletion" interpretation even when we repeat the VP in both clauses of (20), as in (22).

(22) Although not many people would ride with Fred who know just him, some people would ride with Fred.

Here, we do not get the reading some people who know just him.17

Nevertheless, even if we eliminate the apparent problem with (20) by including an overt nominal head, it might still appear that there is an adjunct ellipsis rule applying independent of VP Ellipsis in the generation of sentences such as (23).18

(23) a. A MAN who had blond hair came into the room, and a WOMAN did TOO.
b. A man with blond HAIR came into the room, and a WOMAN did TOO.

Despite the absence of extraposition in the first clause of each of the examples in (23), the second clause allows a reading in which the woman has blond hair too. It might be concluded from this that VP Ellipsis is not a reliable diagnostic for the site of attachment of extraposed constituents. But in fact, it can be argued that sentences such as (23) provide even stronger support for the claim that SX is attached to VP. Notice that the adjunct deletion process that has presumably applied in (23) is not in fact independent of VP Ellipsis. Sentence (24), unlike (23), does not allow the reading that the woman had blond hair.19

(24) A MAN who had blond HAIR came into the room, and a WOMAN

came into the room TOO.

If the adjunct deletion process is contingent on VP Ellipsis, it is only natural to assume that the adjunct deletes as a function of VP Ellipsis. In other words, (23) is derived from (25).

(25) A MAN who had blond HAIR came into the room, and a WOMAN came into the room who had blond hair TOO.

If the SX clause is adjoined to VP, then the availability of the relevant reading in (23) and the lack of it in (24) are accounted for by the application of VP Ellipsis in the former and not in the latter.

This account of (23) allows us to explain an otherwise mysterious observation concerning the presumed process of adjunct ellipsis, that it may not apply to adjectives. For instance, (26), like (25), does not have the reading that the woman too has blond hair, despite its virtual identity to (23).

(26) A blond haired MAN came into the room, and a WOMAN did TOO.

The reason, we claim, is that (23) is derived through VP Ellipsis including the SX phrase, but there is no possible extraposed phrase in the second conjunct of (26). As (27) illustrates, Extraposition may not apply to AP in examples such as (26).

(27) *A man came into the room blond haired.

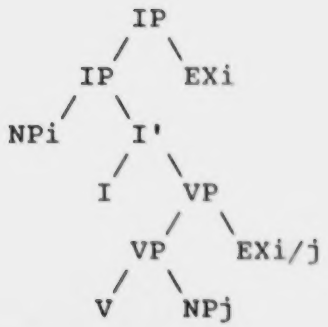
In short, the assumption that SX adjoins to VP allows us to characterize all of the properties of the presumed rule of adjunct ellipsis without any need for an independent rule.

Note that in contrast to OX, while we have shown that SX may be adjoined to VP, we have not demonstrated that it must be. In fact, on the basis of the evidence considered, it may plausibly be assumed that SX may adjoin to either VP of IP. In the absence of evidence to the contrary, we will make this assumption here.

2.2 The proper formulation of the CP

On the basis of the arguments in the prior section, we have concluded that OX must be adjoined to VP and that SX may be adjoined to VP or to IP. The CP, then, must presumably characterize as wellformed only the antecedent / complement relations indicated below.

(35)



Since the formulations of the CP proposed by both Gueron (1980) and Gueron and May (1984) specifically exclude any antecedent / complement relation between NPi and EX in VP adjoined position, neither of these formulations is equal to the task of providing an empirically adequate account of the CP within the parameters defined by (35).20 Before we propose a formulation of the CP that does have the required empirical consequences, we briefly consider a problem, so far ignored in our analysis, that arises with the constituent structure for EX that we have proposed above.

Our earlier conclusion that SX phrases may be adjoined to VP meets with difficulties when we consider constructions in which the VP is displaced from its canonical position, and not simply deleted as in the data considered thus far. In particular, Gueron (1980), Reinhart (1980), and Baltin (1981), in arguing that SX attaches to IP, note that VP Topicalization cannot apply including SX. The examples in (36)-(37) illustrate.

(36) a. They said that a man would come in with some uniquely identifying feature, and come in a man did with blue hair.
b. *They said that a man would come in with blue hair, and come in with blue hair a man did.

(37) a. They said that a man would come in, and come in a man did who had lived in Boston
b. *They said that man would come in, and come in who had lived in Boston a man did.

We add to this a further observation, that SX may not appear with VP in the focus position in a pseudocleft construction, as in (38).

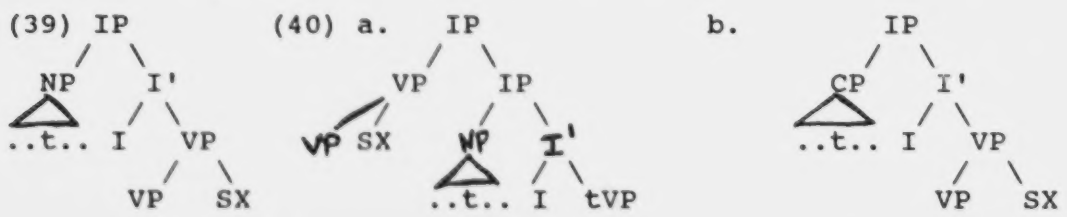
(38) a. ?What someone did who had lived in Boston was come into the room.
b. *What someone did was come into the room who had lived in Boston.

Facts such as these suggest either that SX may not be attached to VP, or that there is some constraint that prevents the SX from

appearing with the VP in topic and pseudocleft focus positions. Since we have already demonstrated that SX may be attached to VP, only the latter possibility remains.

Let us consider first how a movement account might accommodate the facts of (36)-(38). One approach to this problem would be to treat EX as a stylistic operation, applying in the PF component of the grammar. Then so long as VP topicalization and the formation of pseudoclefts are derived prior to S-structure, then the derivation of the (b) examples of (36)-(38) would be blocked. The proposal that EX is a stylistic operation has in fact been made in numerous places (see for example Ross (1967), Rochemont (1978), Chomsky (1986b)). There is, however, clear evidence that EX must be permitted to apply before S-structure, since it may affect features of the LF representation of a given sentence. It has been noted, for instance that EX may affect the interpretation of coreference possibilities (Taraldsen (1981)), the distribution of affective polarity items (Culicover (1980)), and the interpretation of scope possibilities for negation and other operators (Gueron (1980), Culicover (1980)). For such reasons, we do not think it feasible that EX may be analyzed as a PF rule.21

An alternative possibility in a "gap" analysis of EX is that the failure of SX to appear with VP in noncanonical positions is due to a restriction on the relationship between the extraposed phrase and the gap that it binds. There are two plausible candidates, the ECP and Subjacency. On the first approach, the trace of SX within the subject NP is not properly governed after VP Topicalization, and there is an ECP violation. On the second approach, the extraposed phrase in SX has been moved over too many "barriers" or bounding nodes. If we assume that VP topicalizes by adjunction to IP and that pseudocleft sentences have a sentential subject, either approach must distinguish the structures in I and II below, characterizing the relation between t and SX as wellformed only in the former.



Let us consider first whether Subjacency provides the appropriate distinction. If we take Subjacency to be a condition on movement rather than representations (cf. Lasnik and Saito (1984)), then so long as the initial placement of SX in VP adjoined position in I satisfies Subjacency (which we assume it must), Subjacency will be unable to distinguish the relevant cases in (36)-(38).22 We assume therefore that the contrast in (34)/(35) cannot be due to

Subjacency. We consider next whether this contrast may be attributed to the ECP.23

On any movement account it must be the case that the ECP is satisfied, at least for the original trace of movement.24 If there is a trace in EX, the ECP requires that it be properly governed. Let us assume to begin that proper government is satisfied through either lexical or antecedent government. It cannot be then that t in (39) is lexically governed, since if it were then the ECP could provide no account of the contrast between (39) and (40). The trace would be properly governed independent of the position of its antecedent. If this contrast is due to the ECP, then, it must be due to a failure of antecedent government. This same line of argument holds if the ECP is seen as requiring both lexical and antecedent government. If N is not a lexical governor, then structures (39) and (40) are equally excluded. If N is a lexical governor, and the ECP is responsible for distinguishing (39) and (40), then it must be that antecedent government holds in (39) and not in (40). Let us consider then whether these cases can be distinguished in terms of antecedent government.

Consider first a definition of antecedent government that treats it as a form of binding, as in Chomsky (1981), Lasnik and Saito (1984). If antecedent government is a form of binding and binding requires c-command, then antecedent government cannot distinguish between (39) and (40). In none of these structures does SX c-command t. Consider then the view of Chomsky (1986b), that antecedent government is in fact a form of government. The definition of government that Chomsky provides for these purposes is, roughly, that governs if m-commands and no barrier dominating excludes . The definition of m-command is that of c-command, restricted to maximal projections. For our purposes we may simply take a barrier to be a maximal projection that is not theta-governed (directly theta-marked). Chomsky also requires, following May (1985), that a maximal projection does not dominate unless every segment of dominates . Finally, a maximal projection excludes if no segment of dominates . With these assumptions, SX m-commands t in (39), but does not govern it, since NP is a barrier for t, not being theta-governed, and NP excludes SX. Thus, antecedent government formulated as a form of government also fails to distinguish (39) and (40).25

While the available definitions of antecedent government fail to provide the required distinction between (39) and (40), we might nevertheless seek to revise antecedent government appropriately in order to derive the desired effect. We could do this, it appears, in one of two ways. First, we might assume that Chomsky's (1986b) restriction against adjunction to an argument as a means of voiding barrierhood is relaxed in the case of rightward movement. This proposal is unsatisfying both because it introduces an otherwise unmotivated distinction

between leftward and rightward applications of Move and because it does not in fact provide the required distinction. In particular, if such a proposal allows a wellformed derivation for (39), it will presumably also allow an equivalent derivation for (40).26 In either case, antecedent government will be satisfied for t independent of the surface position of SX.

We might therefore seek to revise the definition of antecedent government in a different manner, perhaps simply stipulating that NP is not a barrier to government from the right. Then (39) would satisfy the ECP and (40) would be excluded. In particular, in (40a), NP is a barrier to antecedent government from the left, and in (40b), CP is a barrier to antecedent government from either direction. Once again , we are forced to resort to an otherwise unmotivated stipulation distinguishing leftward and rightward movement/government. In addition, the stipulation is rendered even more unattractive when it is noted that while NP is not always a barrier to government from the right, it sometimes must be one.

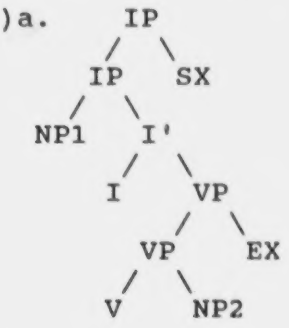
(41) a. John attended the opening of a collection of exciting new art galleries this morning.
b. John attended the opening t this morning of a collection of exciting new art galleries.
c. *John attended the opening of a collection t this morning of exciting new art galleries.

If EX is derived by Move α, then the trace must be antecedent governed in (41b), and NP is not a barrier to such government. But if NP is not a barrier to antecedent government, then why is (41c) bad?27 Presumably NP is a barrier in one case but not in the other. In other words, the stipulation required to treat EX as movement with traces subject to the ECP must be specifically allowed to exempt NP but not CP from being a barrier to rightward movement, and only sometimes. While this account seems to work, it is clearly lacking in explanatory value, and amounts to barely more than a description of the facts. Once again, we see that a movement account is not particularly appealing.28

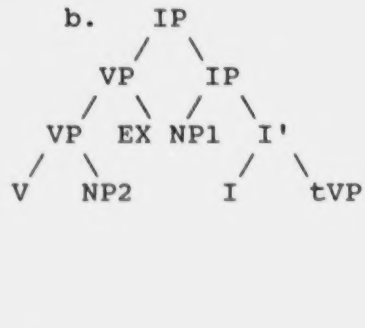
We have just argued that the contrast between structures (39) and (40) may be attributed to neither the ECP nor Subjacency. This position is consistent with the view being advocated here, that EX is not derived by movement. Nevertheless, a nonmovement analysis must yet capture the facts of (36)-(38), and the corresponding contrast between the structures in (39) and (40). Since we have already established the need for the CP, and since we are taking its proper formulation to be a matter of empirical consequence and motivation, we think it advisable to formulate this principle so that it not only characterizes the structures of (35) as wellformed, but also provides the appropriate distinction between (39) and (40). These considerations establish the minimum

requirements that must be satisfied by any formulation of the CP. In particular, in the configurations below EX must be able to serve as complement to either NP1 or NP2 in (a), but may only be construed as a complement of NP2 in (b) and in (c).

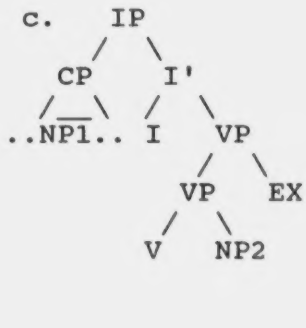
(42)a.



b.



c.



Recall also that SX may serve as a complement to NP1 in (a) but not to NP2.

The formulation for the CP that we propose is given in (43).

(43) If β is a complement of α (β, α = Xmax), then α and β are
(i) in a binding relation, and
(ii) in a government relation.

By 'binding' we mean that α and β are coindexed, and one c-commands the other (cf. (29)). By 'government' we mean (44).

(44) α governs β if α m-commands β and there is no γ (γ = Xmax) that dominates β and excludes α.

The definitions of m-command and exclusion are adapted from Chomsky (1986b), as well as the assumption in (47) (cf. May (1985)).29

(45) α m-commands β iff α does not dominate β and every γ (γ = Xmax) that dominates α dominates β.
(46) γ (γ = Xmax) excludes α if no segment of γ dominates α.
(47) γ (γ = Xmax) dominates α only if every segment of γ contains α.

Given these definitions, the formulation of the CP in (43) is both stronger and weaker than our original statement in (9). The statement in (43) is stronger in that it requires antecedent and complement to be in a c-command relation. It is weaker in that the CP now requires that for a complement to be construed with some antecedent, one must be in the government domain of the other, but it does not specifically require, as did our earlier formulation, that the complement be governed by the antecedent.30

The CP as formulated in (43) has the desired consequences

outlined in (42). In particular, in structure (a) SX may appear adjoined to either VP or IP. In both cases, a binding relation holds between the NP and the extraposed complement. In addition, where the extraposed complement binds NP1, the former governs the latter. Further, where NP1 binds the extraposed complement, it also governs it, given (47). When EX is construed with the NP2 in (a)-(c), a government relation is satisfied only if the extraposed complement appears no higher than the VP adjoined position, as required. Moreover, given the lack of a binding relation between NP1 and EX in (b) and (c), EX may not be construed as a complement to NP1 in these configurations.31

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FOOTNOTES

1. Significant exceptions include Perlmutter and Ross (1967) and Andrews (1975). The analysis of Gazdar (1981), while not invoking movement, still presupposes the presence of a "gap" within NP, and so is subject to the criticisms presented here.

2. The careful reader will have noticed that it is not the case that all extraposed phrases are adjuncts, so that the movement account on Baltin's assumptions appears not to extend to examples such as (i), in which the extraposed phrase is in fact an argument to the head noun.

(i) a. A picture appeared in the paper this morning of John.
b. The construction has just begun of a new bridge over the Hudson.

We think this only a potential problem, however, since it is not entirely clear that the proper formulation of the Projection Principle would require the appearance of an argument trace within the NP (cf. Chomsky (1981) for discussion). Moreover, Baltin's proposal is subject, we think, to more severe criticism than may be established on the basis of (i), as we argue directly. We will therefore not pursue the relevance of (i) any further in this context.

3. In fact, we think the CP does not extend to theta-marking relations in the fashion suggested by Gueron and May (1984), in part because of the criticism of Baltin (1983) that the CP is required to hold only between lexically filled maximal projections, whereas theta-marking may hold between empty elements. The CP is indpendently motivated, we think, by predication, as argued in section 4.

4. We ignore here the possibility that β is an A-bar binder of a trace elsewhere in the structure.

5. If is a predicate or an operator, then the PFI will be satisfied only if satisfies the wellformedness conditions specific to its type. We return in section 4 to one of the conditions that must be satisfied for predicates. See also Williams (1980), Culicover and Wilkins (1984), among others.

6. Though in a fashion different than we propose here. Baltin (1987) presents an argument in favor of the Subjacency account of boundedness in EX and against the Gueron and May account in terms of the CP. We return to this argument later in this section.

7. It might be thought that this stipulation distinguishing leftward and rightward movement is in fact independently motivated by the Presentational <u>there</u> (PTI) construction (cf. (i)), also assumed to involve rightward movement.

(i) There walked into the room a man no one knew.

However, as Culicover and Rochemont (forthcoming) argue, PTI adjoins the postverbal subject to IP, so that a single unbounded application is excluded in the same fashion as noncyclic unbounded leftward movement.

8. Baltin (1987a, 20) also invokes a presumably successive cylcic analysis of movement in EX in order to allow degree complements to take scope outside the clause that most immediately contains their antecedents at S-structure.

The failure of Subjacency to block successive cylcic movement might be remedied, but only by appeal once again to a stipulation regarding (uniformity of) direction in applications of Move α. This stipulation may very well be required to block successive cyclic unbounded movement in PTI constructions, as below.

(i) a. ??John explained that there had appeared to him a vision of the future to everyone who would listen.
b. *John explained that there had appeared to him to everyone who would listen a vision of the future.
c. *John explained had appeared to him to everyone who would listen a vision of the future.

While we think there may be other accounts of (ib,c) (cf. Culicover and Rochemont (forthcoming)), we do not think it crucial to present them here. As we show below, the CP can independently constrain the distribution of extraposed phrases without appeal to movement in the derivation of EX. The issues raised by (i) therefore are ultimately irrelevant to the proper account of EX constructions.

9. Baltin (1983, n.8) notes the inadequacy of a stylistic rule account of the noncyclic nature of movement in EX, and proposes instead to capture it as a function of the ECP, employing a version of proper government that makes appeal to "selection", in a move reminscent of Chomsky's (1986b) notion of L-marking (see also Lasnik and Saito (1984)). Baltin's claim is that the ECP would block successive cyclic movement because the intermediate trace of the EX phrase in VP adjoined position would fail to be properly governed under this view. This proposal is inconsistent with the movement account of EX considered here, either because the intermediate trace might very well be deleted, or because parallel intermediate traces of wh moved adjuncts in fact satisfy the ECP, though they appear in the same position. Either way, the proposal leads to a theory internal contradiction.

10. These and similar facts concerning scope and the distribution of affective conditioned elements argue against a stylistic rule analysis of EX. See Taraldsen (1980), Gueron (1980), Culicover (1980) for discussion.

11. Baltin (1987b) argues that the extraposed phrase must be Chomsky adjoined to VP, and not simply adjoined outside V' for instance. We do not reproduce this argument here, but we take it to be valid. Our arguments against Baltin's analysis of EX remain consistent with this conclusion. (See section 2.)

12. Note that upper case signals the required sole locations of sentence accents in these examples and wherever else employed. Thus, in our judgment, (15a) for example is not as good if pronounced as in (i).

(i) a. A MAN came in with blonde HAIR, and a WOMAN did TOO.
b. A man came IN with blonde hair, and a WOMAN did TOO.

13. See especially Bolinger (1961), Schmerling (1976), Rochemont (1986) for discussion.

14. See Culicover and Rochemont (1983) and Rochemont (1986) for an account.

15. It is failure to be sensitive to these distinctions that has led, we think, to judgments of ungrammaticality in the prior literature for examples roughly equivalent to our (15)-(17). See

for example Gueron (1980), Baltin (1981).

16. Compare with

(i) Fred isn't smarter than many students with blond hair, but he is smarter than some.

17. Notice that we do get such a reading when we replace some people with some [e], as in Baltin's original example.

(i) Although not many people would ride with Fred who know just him, some would ride with Fred.

The availability of this reading in (i) shows that the interpretation of empty nominal heads as in some [e] is a function of LF and not S-structure representations.

18. Another alternative is that the interpretation of the missing relative clause is supplied by an extra-grammatical inferential process rather than by "adjunct deletion". As we will see directly, adjectives may not undergo adjunct deletion. An inferential account would be unable to address this categorial variation.

19. This is not to say of course that the woman could not have blond hair, only that one could not use this sentence to assert that she did.

20. Gueron and May's (1984) proposal meets with other difficulties as well. For instance, in their analysis the NP that serves as antecedent for the extraposed complement in EX necessarily undergoes QR at LF, and the CP is specifically satisfied only at this level. Their claim is that the assumption that the NP antecedent undergoes QR at LF permits a characterization of the definiteness restriction in EX. This presupposed definiteness restriction is not in fact readily characterized by QR, since the antecedents of extraposed phrases are not in fact restricted to quantified expressions, as the example in (i) illustrates.

(i) That man just came into the room that I was telling you about.

A similar observation is made by Kroch and Joshi (1987). Since we do not assume the antecedent NP to undergo QR, we claim that the CP is in fact satisfied for EX at S-structure, as argued also by Baltin (1987a,b). The claimed definiteness restriction is, we think, more adequately characterized semantically, in a fashion perhaps analagous to that proposed by Wittenburg (1987). These issues are treated in greater detail in Culicover and Rochemont (forthcoming).

21. Note that variation in coreference and scope interpretations as a function of EX also argues against the view of McCawley (1982) that the extraposed complement forms a discontinuous constituent with its antecedent at S-structure, if these interpretations are in fact sensitive to considerations of constituent structure and not simply linear order. See also Baltin (1984).

22. It is more difficult to exclude Subjacency as an option if it is interpreted as a condition on representations. In particular, suppose that NP and IP are bounding nodes. Then the relation between t and SX "crosses" no more than one of these in (39), but crosses two in the structures in (40). Moreover, the relation between VP and its trace is appropriately characterized as wellformed in the relevant structures for both (39) and (40), as the reader may easily verify.

Nevertheless, this account requires the presence of the gap within NP. As we will show directly, this gap itself fails to be properly licensed, so while Subjacency as a condition on representations apparently distinguishes the structures (39) and (40), the lack of c-command / proper government in all three structures will independently and uniformly give rise to illformedness.

23. The ECP would not be an alternative if we were to adopt the suggestion of Chomsky (1986b, n.34) that VP Topicalization may be a stylistic rule.

24. Assuming the ECP to hold for all traces, and not just, say, for the trace of NP.

25. Note that Chomsky's suggestion (1986b, 41) that EX may be a PF process and that theta-government may not play the role in determining barriers that it does in the syntactic and LF components, will correctly characterize the relation between t and SX in (39) as wellformed, but will also fail to characterize this same relation as illformed in (40a). Again, antecedent government fails to provide the required distinction.

26. This observation holds independent of the argument/adjunct status of the trace of the extraposed phrase, first, because the facts for extraposition of arguments parallel those in (28)-(30), and second, because even if it is assumed that the intermediate trace must itself remain present and be antecedent governed, it will be antecedent governed by SX in both (39) and (40a).

27. Unless we consider two NP's to constitute a barrier to government from the right, and not one, again an unattractive stipulation. Note that The ungrammaticality of (41c) cannot be due to Subjacency, since the embedded NP is not in fact a barrier, being an argument.

28. It might be thought that there is a further alternative that arises. Note that we have been considering two related problems. First, if there is a trace of EX within the subject NP, how does this trace satisfy the ECP, and second, if it does, is there some version of the ECP that may distinguish between the structures in (39) and (40). To address the first problem, we might assume that the ECP applies only to variable traces, and that the trace of SX is not a variable. But then, the ECP can provide no account of the distinction between (39) and (40). It cannot be therefore that the exceptional behavior of EX is due to the variable/nonvariable character of the trace of the extraposed phrase, unless there is some independent account of the contrast between (39) and (40).

29. The definition of government in (44) parallels that of Chomsky (1986b) in all respects except that it makes no reference to the notion "barrier". That it possibly should is indicated by the example below.

(i) I found it in a magazine yesterday that was on the coffee table.

In the S-structure for (i) the NP antecedent of the extraposed phrase is contained within a maximal projection (PP) that excludes the extraposed phrase. The PP in this case, however, is not a barrier, being L-marked (cf. Chomsky (1986b)). In parallel cases where the PP is not L-marked, it in fact serves as a barrier to government for purposes of the CP, as would be expected under Chomsky's approach.

(ii) a. *In which magazine did you see it which was on the table?
b. *I dropped the paint on a picture by accident of Ronald Reagan.

Example (iia) is drawn from Baltin (1978, 82), and illustrates that PP in COMP is not L-marked in the required sense. In (iib) the PP is an adjunct and not an argument to the verb, and so blocks the government relation between the extraposed complement and its antecedent.

We note in addition that Chomsky's assumption that VP is not L-marked is supported by these observations and the claim that OX may not adjoin higher than VP.

30. Contrary to the criticism of Gueron (1980) by Baltin (1983) that the notion of government relevant to the CP is unmotivated, the notion of government we appeal to in (44) is essentially that of May (1985). See also note 29.

31. We do not expect that the binding relation required by (43) is subject to the binding theory of Chomsky (1981,1986a), since this latter is a theory of A-binding only (binding of and from A-positions).